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A Metapopulation Framework for Explaining the Socio-Demographic and Geospatial Epidemiology of Gonorrhea and Other Sexually Transmitted Infections in Heterosexual PopulationsM. Chen^{1,*}, J. Edmunds², A. Ghani³¹ London School of Hygiene and Tropical Medicine, Singapore, Singapore² Health Protection Agency, Centre for Infections, London, United Kingdom³ Imperial College, London, United Kingdom

Background: Sexually transmitted infections (STIs) have different socio-demographic and geospatial profiles. Gonorrhea is concentrated in epidemiologically distinct subpopulations, but Chlamydia infections are more ubiquitous. Moreover, individual level factors (eg. number of new sex partners a year) are less influential than contextual factors (eg. age, ethnicity, residential area) in determining risk of infection. We propose a flexible modeling framework which explains these epidemiological features for gonorrhea in the United Kingdom (UK), and then use the same model to investigate Chlamydia transmission.

Methods: We modeled 1,00,000 men and women organized into 100 subpopulations. The key difference between subpopulations was the concentration of individuals with high sexual activity, which followed a Pareto-like distribution defined by a single parameter, f . A proportion of sexual partnerships (p) occurred exclusively within the same subpopulation, with the remainder occurring with available partnerships from outside the subpopulation. Gonorrhea and Chlamydia were depicted as susceptible-infected-susceptible deterministic models. Transition between compartments followed published estimates.

Results: When using parameters appropriate for gonorrhea, we found that $p = 0.7$ and $f = 0.4$ produced an incidence compatible with that for sexually active ages in the Greater London population (~200 cases per 100,000 population per year). Most subpopulations had an incidence lower than the general population, while subpopulations where self-sustaining transmission was possible had incidence rates which were ten-fold higher. We kept $p = 0.7$ and $f = 0.4$ while modifying other parameters to depict Chlamydia; the model produced appropriate incidence rates (~400 per 100,000). The modeled Gini coefficient, which measures how much the distribution of cases deviates from equality, was 0.47 for gonorrhea and 0.26 for Chlamydia, which correlated well with previous UK-based estimates for these infections (0.49 and 0.26 respectively).

Conclusion: The metapopulation framework explains how contextual and individual level factors interact to produce the observed epidemiology of STIs.

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Genital Tuberculosis: A Silent Infection in Infertile Indian Population

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Background: Genital tuberculosis is reported to be a major factor causing infertility in Indian women and often exists without any apparent signs and symptoms.

Aim: To study the effect of tuberculosis, a common infectious disease in the Indian subcontinent, its subsequent effect on female fertility.

To assess the clinical presentation of genital tuberculosis and to study various modes of diagnosis.

Method: Study was done between Jan 2005- Dec 2006 on 250 infertile women at an infertility care and assisted reproductive unit in Central India, in whom there was clinical suspicion of genital tuberculosis. All underwent diagnostic laparoscopy and biopsy for confirmation and other causes of infertility were excluded. Utility of various laboratory parameters AFB smear, AFB culture and PCR to diagnose genital tuberculosis were assessed. Laparoscopic findings were correlated with laboratory results.

Result: The prevalence of genital TB was higher than one might imagine. Among the 170 infertile women affected with genital tuberculosis there were cases of primary ($n = 149$) and secondary ($n = 21$) infertility. The diagnosis of endometrial tuberculosis was confirmed by AFB smear 52, AFB culture 6, PCR 112.

Treatment with anti-tubercular drug therapy resulted in increased conception rate.

Laparoscopy examination is a valuable procedure for the etiological diagnosis of tubal infertility and correspond with positive PCR 88%, AFB smear 72% and AFB culture in 98%.

Conclusion: It is essential for a gynaecologist working in developing countries to anticipate possibility of genital tuberculosis in infertile patients. This study highlights the fact that tuberculosis, a chronic infectious disease, is one of the major etiologic factors of female infertility, especially on the Indian subcontinent.

Female genital tuberculosis is a symptom-less disease inadvertently uncovered during investigation for infertility. Clinicians need to be aware of the existence of this important cause of infertility in women, in view of the current upsurge in tuberculosis worldwide.

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Access to Sexually Transmitted Infections Services in Rural South Africa: An Evaluation of the Implementation of the National Treatment Guidelines

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Treatment of sexually transmitted infections (STI) is a major public health priority for South Africa. In 1996, the Department of Health adopted the syndromic case management to improve STI treatment by establishing the National

Treatment Guidelines (STG) and the provision of effective drugs. The syndromic case management strategy aims to reduce the load of STI in facilities. However in South Africa evidence still suggest that in many regions management of STI remain inadequate, more so in rural regions where accessibility of STI services is a challenge. The goal of the study was to assess the accessibility of STI services to clients, in terms of utilisation of STI services, partner notification rates, and clinicians' knowledge about STI syndromic treatment and drug supplies.

Methods: Interviews were conducted with nurses from 19 rural clinics and 8 mobile clinics in one district in Limpopo province South Africa. Observations for STIs consultations and record review were also conducted and scored using the District STI Quality of Care Assessment (DISCA) tool.

Results: Facilities reported adequate drug supply, but only 39% of facilities offer after-hours services; there was lack of training in syndromic management with only 29% of clinicians trained. Though syndromic management protocols were available in all facilities, 50% of clinicians failed to cite the correct treatment for STI syndromes. Contact-slips for partner notification was provided in 41% of facilities but only 48% of sexual partners were treated; condoms were out of stock in 89% in the past month and in 11% of facilities during the survey.

Conclusion: Majority of facilities does not offer after-hours services and client load was considered to be very low suggesting poor access of STI services. There is a need to train all clinicians and extend services to after hours to improve STI services including partner notification and treatment.

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Genital Ulcers in Men in Hong Kong

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Background: Genital ulcer is a common presentation of sexually transmitted infections (STI). Its presence increases risk for transmitting other STI such as HIV. Free STI treatment is provided by Hong Kong public STI clinics where profiles of new male attendees have been used as sentinels for STI surveillance of high risk heterosexual men. It provides a convenient platform to understand the epidemiology of male genital ulcers locally.

Methods: An annual survey of all new attendees at the public STI clinics was conducted during November from 2000 to 2006. The nurse-administered survey included questions on demographics, symptomatology and risk behaviours. Diagnosis of STI was made and recorded following a standard protocol: serology for syphilis and HIV, viral culture for herpes for ulcerative genital lesions.

Results: Altogether 706 men presented with genital ulcers during the study period. This represents 13% of all symptomatic new male attendees, the proportion fluctuated between the lowest of 11% in 2003 and highest 15% in 2006.

Median age was 43. One third were unemployed or retired, one third worked as blue collars and one third white collars. Thirty-eight percent had any definitive STI diagnosis. The commonest diagnosis was genital herpes (88, 12%) and 6% (50) had syphilis. No HIV was diagnosed. Wart was diagnosed in 7% of the cases where ulcers were mostly self-inflicted or iatrogenic. Seventy percent of the syphilis occurred in men above 40, while the same proportion of herpes was diagnosed in men under 40. Across the period proportion of genital ulcers with definitive STI diagnosed decreased from 46% to 28%, otherwise pattern of STIs remained similar.

Discussion: One in eight symptomatic male pubic STI clinics attendees presented with genital ulcer. Among them, herpes is the commonest diagnosis and HIV is very rare. No increase of ulcerative STI, including primary syphilis, among high risk heterosexual men has been observed in Hong Kong.

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Clinic-Based Management of Sexually Transmitted Infections: A Cross-Sectional Study of a Sentinel Site in South Africa

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Background: As part of the policy to integrate sexually transmitted infections (STI) services into primary healthcare (PHC), seventeen PHC clinics were selected by the National Department of Health as sentinel sites for the national STI program. Staffs treating STIs in these facilities are trained in syndromic case management and should adhere to the national protocol guidelines in order to improve STI services. The objectives of the study were to determine if STI services provide adequate care for men and women infected with STIs and to determine if treatment and care include STI prevention education.

Methods: A cross-sectional descriptive study was conducted in one of the sentinel STI sites in Gauteng province, South Africa, clients using the clinic completed a structured questionnaire and clinic records were reviewed and the number of STI clients who attended the clinic six months before the study documented. From a study population of 444, using a 95% confidence level, the sample size was 80. Data was analysed using the EPI-Info and presented as frequencies and percentages.

Results: Among a sample of 81 respondents, 49% was male and 51% female. The age range was 13–49 years. 89% of clients were counselled on complete treatment and safer sexual behaviour, 77% had good knowledge of STIs including HIV and condom use, 63% indicated that they did not receive VCT for HIV during their STI consultation as compared to 37% who indicated that they received VCT on HIV. 78% indicated that STI services was accessible but only 46% rated the quality of care as good.

Conclusion: Though data show that the STI protocol guidelines were not fully adhered to, consultation included